WHAT IS CLAIMED IS:

1. A method of inhibiting growth and reproduction of microorganisms in a cooling water system used in an industrial process, comprising the steps of:

   a) providing cooling water;

   b) adding an effective amount of deactivatable biocide to the cooling water; and

   c) adding an effective amount of a neutralizing agent to the cooling water to deactivate the biocide before or upon disposal of the cooling water.

2. A method according to claim 1, wherein the biocide is added in an amount of at least 1 ppm.

3. A method according to claim 1, wherein the biocide is added in an amount of at least 10 ppm.

4. A method according to claim 1, wherein the biocide is added in an amount of at least 100 ppm.

5. A method according to claim 1, further comprising a step (d) releasing the cooling water into a natural environment after the biocide has been deactivated.

6. A method according to claim 1, further comprising a step (d) discharging the cooling water into a biological oxidation facility.

7. A method according to claim 1, wherein the biocide is an aldehyde and the neutralizing agent is a nitrogen-containing compound selected from the group consisting of amines, amino acids, amino alcohols, and mixtures thereof.

8. A method according to claim 1, wherein the biocide is an alkyne and the neutralizing agent is a hydrogenation catalyst and H_2.

9. A method according to claim 7, wherein the biocide is glutaraldehyde and the nitrogen-containing compound is selected from the group consisting of monethanolamine, diethanolamine, methyldiethanolamine, and diethylamine.

10. A method according to claim 1, wherein after the neutralizing agent is added, the cooling water supports visible growth of microorganisms in less than 10 days when exposed to a certified inoculum, growth media, and rapidly biodegradable substance under ambient conditions.

11. A method according to claim 1, wherein after the neutralizing agent is added, the cooling water supports visible growth of microorganisms in less than 5 days when exposed to a certified inoculum, growth media, and rapidly biodegradable substance under ambient conditions.

12. A method of inhibiting growth and reproduction of microorganisms in a cooling water system for a Fischer Tropsch facility, comprising the steps of:

a) providing cooling water;

b) performing a Fischer-Tropsch synthesis process;

c) isolating Fischer-Tropsch-derived liquid products from the Fischer-Tropsch process;

d) isolating Fischer-Tropsch derived deactivatable biocides from the Fischer-Tropsch process;

e) adding an effective amount of the Fischer-Tropsch derived deactivatable biocide to the cooling water; and

f) adding an effective amount of a neutralizing agent to the cooling water to deactivate the biocide before or upon disposal of the cooling water.

13. A method according to claim 1, wherein the biocide is added in an amount of at least 100 ppm.

14. A method according to claim 12, further comprising a step (g) releasing the cooling water into a natural environment after the biocide has been deactivated.

15. A method according to claim 12, further comprising a step (g) discharging the cooling water into a biological oxidation facility.

16. A method according to claim 12, wherein the biocide is glutaraldehyde and the nitrogen-containing compound is selected from the group consisting of monethanolamine, diethanolamine, methyldiethanolamine, and diethylamine.

17. A method according to claim 12, wherein the cooling water supports growth of microorganisms in less than 5 days after adding the neutralizing agent under ambient conditions when exposed to a certified inoculum, growth media, and a hydrocarbonaceous product.

18. A method according to claim 12, wherein the biocide is an alkyne and the neutralizing agent is a hydrogenation catalyst and H_2.

19. A method according to claim 12, wherein the Fischer-Tropsch derived deactivatable biocides are isolated by distillation or chromatographic separation.

20. A method of inhibiting growth and reproduction of microorganisms in a cooling water system for a Fischer Tropsch facility, comprising the steps of:

a) providing cooling water;

b) performing a Fischer-Tropsch synthesis process to provide a product stream;

c) fractionally distilling the product stream and isolating liquid hydrocarbonaceous products and oxygenates;

d) subjecting the oxygenates to oxidation to form aldehydes;

e) adding an effective amount of the aldehydes to the cooling water to resist visible growth for at least 10 days under ambient conditions when exposed to a certified inoculant; and

f) adding an effective amount of a neutralizing agent to the cooling water to deactivate the aldehydes before or upon disposal of the cooling water.

21. A method according to claim 20, wherein the biocide is added in an amount of at least 100 ppm.

22. A method according to claim 20, wherein the biocide is glutaraldehyde and the neutralizing agent is selected from the group consisting of monethanolamine, diethanolamine, methyldiethanolamine, and diethylamine.

23. A method according to claim 20, wherein the oxygenates are isolated from light Fischer Tropsch products.

24. A method of inhibiting growth and reproduction of microorganisms in a cooling water system for a Fischer Tropsch facility, comprising the steps of:

a) providing cooling water;

b) performing a Fischer-Tropsch synthesis process to provide a product stream;

c) fractionally distilling the product stream and isolating liquid hydrocarbonaceous products and olefins;

d) subjecting the olefins to dehydrogenation to form alkynes;

e) adding an effective amount of the alkynes to the cooling water to resist visible growth for at least 10 days under ambient conditions when exposed to a certified inoculant; and

f) adding an effective amount of a neutralizing agent to the cooling water to deactivate the alkynes before or upon disposal of the cooling water.

25. A method according to claim 24, wherein the biocide is added in an amount of at least 100 ppm.

26. A method according to claim 24, wherein the alkynes are primary alkynes and the neutralizing agent is a hydrogenation catalyst and H_2.

27. A method according to claim 24, wherein the olefins are formed from a thermal cracking process which uses a heavy Fischer Tropsh feed derived from a Fischer Tropsch process.

28. A method according to claim 24, wherein the olefins are isolated from light Fischer Tropsch products.